

Application No. 09/594,816
Amendment filed June 3, 2004
Reply to final Office Action mailed April 4, 2004

Attorney Docket No. 040071-079
Page 4

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

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Claim 1 (Currently Amended): An electroacoustic transducer, comprising:
a driver; and
an acoustic horn having an acoustical impedance matched with
impedances of an ear and the driver, wherein the acoustic horn has a cross-
sectional area that generally increases in one of an exponential, conical, parabolic,
and hyperbolic manner from a small end proximate the driver to a large end.

Claim 2 (Previously Presented): The electroacoustic transducer as set forth
in claim 1, further comprising a plate disposed proximate the large end of the horn,
the plate having one or more holes therein, and wherein the horn's cross-sectional
area at the small end is less than the horn's cross-sectional area at the large end.

Claim 3 (Original): The electroacoustic transducer as set forth in claim 1,
wherein the driver includes a driving membrane.

Claim 4 (Original): The electroacoustic transducer as set forth in claim 3,
wherein the driving membrane has a diameter less than 1 mm in diameter.

Claim 5 (Currently Amended): An acoustic horn having an acoustic
impedance matched with impedances of an ear and a driver, wherein the acoustic
horn has a cross-sectional area that generally increases in one of an exponential,
conical, parabolic, and hyperbolic manner from a small end to a large end.

Claim 6 (Previously Presented): The acoustic horn as set forth in claim 5,
further comprising a plate disposed proximate the large end of the horn, the plate
having one or more holes therein, and wherein the horn's cross-sectional area at the

Application No. 09/594,816
Amendment filed June 3, 2004
Reply to final Office Action mailed April 4, 2004

Attorney Docket No. 040071-079
Page 5

small end is less than the horn's cross-sectional area at the large end.

Claim 7 (Currently Amended) A portable device, comprising:

B3
a body;

a driver mounted inside the body; and

an acoustic horn having an acoustical impedance matched with impedances of an ear and the driver, a large end of the horn extending to a position proximate an exterior surface of the body, and a small end of the horn being disposed proximate the driver, wherein the horn has a cross-sectional area that generally increases in one of an exponential, conical, parabolic, and hyperbolic manner from the small end to the large end.

Claim 8 (Previously Presented): The portable device as set forth in claim 7, further comprising a plate disposed proximate the large end of the horn, the plate having one or more holes therein, and wherein the horn's cross-sectional area at the small end is less than the horn's cross-sectional area at the large end..

Claim 9 (Original): The portable device as set forth in claim 8, wherein the plate is part of the body.

Claim 10 (Original): The portable device as set forth in claim 7, wherein the horn is integrally formed with the body.

Claim 11 (Original): The portable device as set forth in claim 7, wherein the driver includes a driving membrane.

Claim 12 (Original): The portable device as set forth in claim 11, wherein the driving membrane has a diameter less than 1 mm in diameter.

Claim 13 (Original): The portable device as set forth in claim 7, wherein the body forms at least part of a telephone device.

Application No. 09/594,816
Amendment filed June 3, 2004
Reply to final Office Action mailed April 4, 2004

Attorney Docket No. 040071-079
Page 6

Claim 14 (Original): The portable device as set forth in claim 13, wherein the telephone device further includes a microphone arrangement.

B3
Claim 15 (Original): The portable device as set forth in claim 7, wherein the body has an elongated shape.

Claim 16 (Original): The portable device as set forth in claim 15, wherein the body forms at least part of a writing instrument.

Claim 17 (Original): The portable device as set forth in claim 7, wherein the body forms at least part of a personal computer.

Claim 18 (Original): The portable device as set forth in claim 7, wherein the body forms at least part of a pager.

Claim 19 (Original): The portable device as set forth in claim 7, wherein the body forms at least part of a personal digital assistant.

Claim 20 (New): The electroacoustic transducer as set forth in claim 1, wherein the acoustic horn is about 5 mm in length from the small end to the large end and is about 4 mm wide at the large end.

Claim 21 (New): The acoustic horn as set forth in claim 5, wherein the acoustic horn is about 5 mm in length from the small end to the large end and is about 4 mm wide at the large end.

Claim 22 (New): The portable device as set forth in claim 7, wherein the acoustic horn is about 5 mm in length from the small end to the large end and is about 4 mm wide at the large end.